

An amended Declaration is submitted herewith which contains the application number and filing date which was missing in the prior submission of same, as noted by the Examiner. A *Declaration* in lieu of *Oath* was submitted in this application as permitted by 35 U.S.C. §25 entitled *Declaration In Lieu Of Oath* which provides:

- (a) The Director may by rule prescribe that any document to be filed in the Patent and Trademark Office and which is required by any law, rule, or other regulation to be under oath may be subscribed to by a written declaration in such form as the Director may prescribe, such declaration to be in lieu of the oath otherwise required.
- (b) Whenever such written declaration is used, the document must warn the declarant that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001).

37 CFR 1.68 provides "...When a declaration is used, it is unnecessary to appear before any official in connection with the making of the declaration..." Applicants thus respectfully submit that no signature by a Notary is necessary since the document submitted is a Declaration and not an Oath.

Applicants hereby submit that they are making a good-faith effort to determine the nature of the Examiner's objection to the drawings as set forth on page 3 of the Official Action. The description of the elements found in Figs. 1(a) through 1(f), i.e., elements 1-100 to and including 1-190 and 1-200 through 1-220 are found on pages 1 (last paragraph) through page 3 of the specification. Fig. 2(e) is presented at the top of page 5 of the drawings.

The description of the elements found in Figs. 3(a) through 3(e) are found on page 9 of the specification. A replacement drawing page is enclosed showing elements 3-260 and 3-270.

As to the reference to reference characters I-240, I-230, they are shown in Fig. 2(a) of the drawings and are discussed on page 8 of the specification. Page 11 has been retyped to include reference to element 4-120 in Fig. 4(b).

Applicants have amended Claim 1 to the extent that there is now sufficient antecedent basis for the language "said mold" in Claim 13.

The Examiner is respectfully requested to reconsider his rejection of Claims 1, 13, 55 - 57, 60 under 35 U.S.C. 102(e) as being anticipated by Shih (United States Patent Publication No. 2004/0029041).

Paragraphs 0012 – 0014 which include disclose cited by the Examiner in support of his “anticipation” rejection, are included in the Shih specification to point out the unsatisfactory results found in the prior art.

For example [0012] under the section denoted “Description of the Prior Art” states: “The dual damascene (DD) process, a widely used technology in advanced IC manufacturing processes, enables the deposition of two metal layers in one metal deposition step... The substrate 20 has an area 24 with isolated structures as well as an area 26 with densely located features. Thus, the feature density varies within the die and across the substrate surface. The topography is as profound as it can be when the first planarization layer 28 is coated onto this patterned surface because feature density plays a critical role in determining the final film thickness as shown in FIG. 2(b). The film thickness on top of the structure is much thinner in area 26 over densely located features than the film thickness over area 24 containing isolated structures. As a result, local planarization is achieved within an area having the same feature density. However, recessed areas occur as a result of the thinner film thickness over high feature density areas. In the worst cases, if the coated film is not thick enough, the high aspect ratio structures (such as vias and trenches) in the dense feature density areas may be only partially filled while the structures in less dense feature areas may be fully filled by the first planarization material layer 28. Therefore, global planarity is absent within the die and across the substrate surface.”

Paragraph [0013] states: A second layer 30 is then coated onto the planarization layer 28 that lacks global planarity...One approach to minimize the top layer film thickness non-uniformity and improve the global planarity is to apply a fairly thick (as thick as several microns or even thicker) underlying planarization layer that will provide a better local

and global surface planarity onto which additional layer(s) can be applied. The thick planarization layer results in a longer plasma etch time and requires a higher plasma etch selectivity. The plasma etch rate of the planarization layer needs to be much higher than that of the top-imaging layer. These qualities raise the concerns of throughput and materials compatibility with the process. Another approach is to have dummy structures built into the areas having lower feature density to provide less variation of feature density within the die and across the substrate surface to alleviate the feature density effect. Therefore, a better global planarity can be achieved on the planarization layer surface. However, with the use of dummy structures, the designs and circuitry layouts are more complicated. The approach may also increase the die size needed, which is not desirable.

Further, paragraph [0014] continues with the problems inherent in the prior art. As alternatives to the photolithography process, several emerging lithography technologies, such as imprint lithography, nano-imprint lithography, hot embossing lithography, stamping pattern transfer, etc. have been proposed and pursued in creating microstructures. Imprint lithography, nano-imprint lithography, and hot embossing lithography utilize a mold to imprint the patterns onto a substrate surface onto which a thin, flowable molding material is coated. These processes can be carried out at either ambient temperatures or elevated temperatures. When the mold surface makes contact with the molding material, the material is forced to flow, under the imprint or embossing processing conditions, and to conform to the patterned mold surface. The molded material is then hardened either by a photo or thermal means. The mold is separated from the hardened molded material. Negative patterns of the mold's patterns are transferred to the molded material. The patterned surface is plasma etched with adequate parameters and sequences to transfer the patterns to the underlying layer, if necessary. These lithography technologies do not rely on light exposure through the pattern-bearing photomask (or reticle) to transfer patterns to the photoresist layer. Therefore, DOF is not an issue. However, the coated flowable molding material needs to have a very uniform thickness with a nearly perfect global planarity across the substrate surface. It is reasoned

that the mold is rigid and the structures to be transferred are very tiny. The mold surface needs to be kept perfectly parallel to the surface to be patterned. Any topography and thickness non-uniformity in the molding material layer have a high possibility of catastrophic impacts on the final patterns transferred to the substrate surface. A topographic surface will cause incomplete pattern transferring. A non-uniform molding material thickness will cause complexity during plasma etch. That is, thicker film areas will be under-etched while thinner areas will be over-etched... ” (Emphasis added)

These excerpts do not provide a proper basis for a rejection pursuant to 35 U.S.C. § 102(e) because they are not a positive recitation of the structural limitations now found in Claim 1 as presently written. The disclosures point out that the methods and structures embodied in the description cited by the Examiner in support of his rejection do not work.

Applicants respectfully submit that the specificities of the Shih disclosure does not rise to the level required to qualify as an appropriate reference with respect to Applicant's invention.

Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. (Citations omitted) *In re Lonnie T. Spada et al.*, 911 F.2d 705, 708 (Fed. Cir. 1990)

Applicants have amended Claim 1 to positively recite elements (per page 12 and Fig 5) comprising the mold of the present invention. Thus the basis for the rejection is now moot since there are elements recited in Claim1 which are not found in the Shih disclosure.

The Examiner is respectfully requested to reconsider his rejection of Claims 51 – 52 under 35 U.S.C. §103(a) as being unpatentable over Shih (United States Patent Publication No. 2004/0029041) in view of Westmoreland (United States Patent Publication No. 2002/0185584).

The Examiner concedes that Shih does not teach the mold is treated with a low surface energy component which is a fluorinated self assembly monolayer such as the fluorinated compounds claimed.

Westmoreland discloses that a film is provided on a mold used during semiconductor device fabrication through surface modifications to the mold to provide non-stick characteristics and a mold surface that is resistant to abrasion or wear. Upon reading the complete disclosure of Westmoreland, there is no basis to combine the two references.

The Examiner is respectfully requested to reconsider his rejection of Claims 53 – 54 under 35 U.S.C. §103(a) as being unpatentable over Shih (United States Patent Publication No. 2004/0029041) in view of Sreenivasan, et al. (United States Patent No. 7,136,150).

The Sreenivasan, et al. invention is directed to providing a template with alignment marks that are opaque to selective wavelength of light. In one embodiment, a template is provided having patterning areas and a template, with the template mark being formed from metal and disposed outside of the patterning areas. The alignment marks may be surrounded by a moat to prevent curable liquid from being in superimposition therewith during imprinting. In this manner, opaque alignment marks may be employed without degrading the quality of the pattern formed during imprinting.

Applicants question the propriety of citing the Sreenivasan, et al. reference as it was not in the public domain for review by the skilled artisan in combination with Shih when Applicants' application was filed. (Applicant filed 03-13-2004 and Sreenivasan, et al. issued 11-14-2006)

There is no suggestion in the text of the Sreenivasan, et al. reference that would lead one skilled in the art to combine the contents thereof with the Shih publication.

The rejections noted above citing the combination of Shih with Westmoreland and Shih with Sreenivasan, et al., in combination, do not disclose or even imply the claims of the present invention as now amended. In the rejection, the Examiner is selectively picking

and choosing individual elements disclosed in the references to the exclusion of what the references as a whole teach to one skilled in the art. For example, to arrive at Applicants' invention, the person skilled in the art would have to randomly pick and choose among a number of different elements found in Westmoreland or Sreenivasan, et al al. with the only guidance as to what element(s) to select being that provided by Applicants disclosure. Based upon the skilled artisan's reading and knowledge of the systems disclosed and their respective objectives and how they are implemented, it is unlikely that the person skilled in the art would use the combination of references cited. Also note that Claim 1 has been amended to a different scope from that as filed.

In order to analyze the propriety of the Examiner's rejections in this case, a review of the pertinent applicable law relating to 35 U.S.C. § 103 is warranted. The Examiner has applied the two references discussed above using selective combinations to render obvious the invention.

The Court of Appeals for the Federal Circuit has set guidelines governing such application of references. These guidelines are, as stated are found in Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ, 543, 551:

When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than hindsight gleaned from the invention itself.

A representative case relying upon this rule of law is Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ 2d 1434 (Fed. Cir. 1988). The district court in Uniroyal found that a combination of various features from a plurality of prior art references suggested the claimed invention of the patent in suit. The Federal Circuit in its decision found that the district court did not show, however, that there was any teaching or suggestion in any of the references, or in the prior art as a whole, that would lead one with ordinary skill in the art to make the combination. The Federal Circuit opined:

Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. [837 F.2d at 1051, 5 USPQ 2d at 1438, citing Lindemann, 730 F.2d 1452, 221 USPQ 481, 488 (Fed. Cir. 1984).]

The Examiner has selected elements from the cited references for the sake of showing the individual elements and/or steps claimed without regard to the total teaching of the two references.

The Examiner in his application of the cited references is improperly picking and choosing. The rejection is a piecemeal construction of the invention. Such piecemeal reconstruction of the prior art patents in light of the instant disclosure is contrary to the requirements of 35 U.S.C. § 103.

The ever present question in cases within the ambit of 35 U.S.C. § 103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the teachings of the prior art at the time the invention was made. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. (Emphasis in original) In re Wesslau 147 U.S.P.Q. 391, 393 (CCPA 1965)

This holding succinctly summarizes the Examiner's application of references in this case, because the Examiner did in fact pick and choose so much of the Westmoreland and Sreenivasan, et al. references to support the rejections and did not cover completely in the Office Action the full scope of what these varied disclosure references fairly suggest to one skilled in the art.

Further, the Federal Circuit has stated that the Patent Office bears the burden of establishing obviousness. It held this burden can only be satisfied by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the reference.

Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." ACS Hosp. Sys., 732 F.2d at 1577, 221 USPQ at 933. [837 F.2d at 1075, 5 USPQ 2d at 1599.]

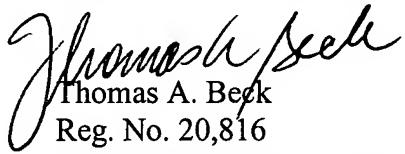
The court concluded its discussion of this issue by stating that teachings or references can be combined only if there is some suggestion or incentive to do so.

Applicants have attempted in this response to amend Claim 1 to place it and the other dependent claims in a form which should result in their allowability.

The Commissioner is requested to grant a one month extension of time within which to respond to the Official Action noted above. A check in the amount of \$120.00 is enclosed to cover the one month extension fee.

In view of the arguments and modifications to the claims, allowance of this case is warranted. Such favorable action is respectfully solicited. If the Examiner wishes to discuss via telephone the substance of any of the proposed claim changes contained herein with the intent of putting them into an allowable form, Applicants' attorney will be glad to speak with him at a mutually agreeable time and will cooperate in any way possible

Respectfully submitted,


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I certify that this amendment was deposited with the United States Postal Service on the date shown below addressed to: *Assistant Commissioner of Patents, P.O. Box 1450. Alexandria, VA 22313-1450*

Signature 
Name: Thomas A. Beck Date: February 19, 2008